

REMARKS/ARGUMENTS

Claims 18-23 and 25-40 are pending. Claims 18-23 and 25-40 were rejected. By virtue of this response, claim 34 has been cancelled and claims 18, 33, and 40 have been amended. Accordingly, claims 18-23, 25-33, and 35-40 are currently under consideration.

The amendments to the claims are supported, for example, in paragraphs [0023], [0025], and [0029] of the specification.

With respect to all amendments and canceled claims, Applicant has not dedicated or abandoned any unclaimed subject matter and, moreover, has not acquiesced to any rejections and/or objections made by the Office. Applicant expressly reserves the right to pursue prosecution of any presently excluded claim embodiments in future continuations, continuations-in-part, and/or divisional applications.

Interview Summary

Applicant would like to thank Examiner Basichas for extending the courteously-conducted telephone interview on April 27, 2010. The discussion regarding the claims and cited references was very helpful. Applicant has endeavored to respond to the points raised by the Examiner in the response that follows.

Information Disclosure Statement

A Supplemental Information Disclosure Statement accompanies this response. Applicant would appreciate the Examiner initialing the Form PTO/SB08A/B, indicating that the references listed therein have been considered and made of record in this case.

Double Patenting Rejection

Claims 18-23 and 25-40 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly unpatentable over claims 16-30 of copending

Application No. 10/563,170. As discussed during the interview, Applicant does not believe that the currently-pending claims are obvious in view of the claims of copending Application Serial No. 10/563,170. Applicant consequently respectfully requests that the rejection be withdrawn.

Claim Rejections under 35 U.S.C. §103

Claims 18-22, 27-29, and 34-40 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Sick (U.S. Patent No. 4,820,033) in view of Mertens (U.S. Patent No. 4,435,043). Applicant respectfully traverses this rejection.

References that do not teach all elements of the claimed invention in the arrangement specified in the claim cannot render the invention obvious. Sick in view of Mertens does not teach or suggest all of the elements in the arrangement as presently claimed.

Neither Sick nor Mertens, alone or in combination, teach or suggest a carrier structure which contains a reflector, a separate platform which supports the reflector, at least one curved transverse frame member which causes the platform, and thereby the reflector, to curve concavely, a spine, and a space frame which supports the platform and contains struts that connect opposite ends of the curved transverse member to the spine, for instance. The claimed invention is therefore not obvious in view of the references.

The Office Action states that Sick discloses a platform 11 which is arranged to carry the reflector element 15 and is formed with stiffening elements 12, 24. In the interview, the Examiner stated that element 11 of Sick, which are disclosed as “clamping section supports . . . which extend parallel to one another” may be interpreted as a platform when the term “platform” is given its broadest reasonable interpretation. Alternatively, the Examiner stated that element 11 of Sick could be interpreted as a platform in combination with the mirrors 15, with the mirror as a shiny surface on one side of the “platform.”

Applicants respectfully disagree with these interpretations, and maintain that parallel side rails 11 do not represent a “platform” as that term is generally used. Further, claim 18 recites a reflector element as a separate element from a platform which is arranged to carry the reflector element. In fact, the word “element” alone indicates that the reflector element is a piece separate from the platform. Sick discloses mirrors 15 between the side rails 11, but not a platform

arranged to carry the mirrors in combination with other elements specified in Applicant's claims. Solely for clarification, the claims have been amended herein to recite that the reflector element is separate from the platform, as the word "element" indicates. Sick does not teach or disclose such an arrangement of the reflector and the platform.

The Office Action further states that Sick discloses a frame structure 26, 32 supporting the platform. In the interview, the Examiner stated that elements 26 and 32 of Sick support platform 11 and reflector elements.

Although Applicant does not necessarily agree with the Examiner's interpretation, the claims have been amended to recite additional features to clarify the structural features of the carrier structure of the present invention. In particular, the claims recite that the space frame that supports the platform comprises struts that connect opposite ends of at least one curved transverse frame member to a spine member. Elements 26 and 32 of Sick, which the Examiner has identified as a frame structure, do not contain struts connecting ends of a curved transverse frame member to a spine, nor does Sick disclose a spine.

The Office Action does not address the curved transverse frame member specified in the claim which imparts curvature to the platform and the reflector element. In the interview, the Examiner stated that element 26 of Sick is a curved transverse frame member because it is curved and transverse. With regard to the claimed arrangement whereby the curved transverse frame member imparts curvature to the platform and the curvature of the platform imparts curvature to the reflector element, the Examiner stated that the term "impart" does not reflect a curvature of one part of the structure causing curvature of another part of the structure.

Accordingly, solely for clarification, the claims have been amended herein to recite that the curved transverse frame member *causes* the platform to curve concavely and that the curvature of the platform *causes* the reflector element to curve concavely. Sick does not teach or suggest such an arrangement whereby the curvature of a frame member (*i.e.*, element 26, which the Examiner identified as a curved transverse frame member) causes curvature of a platform (*i.e.*, element 11 or element 11 plus 15, which the Examiner identified as a platform), which subsequently causes curvature of a separate reflector element.

The Office Action states that Sick does not specifically recite a corrugated support, and

cites Mertens as teaching a solar mirror panel support including corrugated support 8, so as to provide effective strength and efficiency.¹ Mertens fails to cure the deficiencies of Sick. In particular, Mertens does not teach or suggest a curved transverse frame member as claimed. In the structure described in Mertens, a platform is built flat and then curvature is imposed, as opposed to the claimed structure wherein curvature of a platform is caused by the curvature of a frame member that supports the platform. Further, Sick indicates that his structure supports his mirror. It is not apparent why a person of skill in the art would view it as obvious to look to Mertens and provide a platform with corrugations for support of a separate reflector element when Sick characterizes his structure as providing “a precisely aligned and optically problemfree parabolic mirror arrangement is now present²” upon completing his reflector assembly. It is not apparent from Sick why a person of ordinary skill reviewing Sick would consider it obvious to incur the additional expense and complexity associated with Mertens’ structure and incorporate it into Sick’s structure.

In addition, Mertens does not teach a space frame that supports the platform and comprises struts that connect opposite ends of at least one curved transverses frame member to a spine member. Therefore, the combination of Sick and Mertens fails to teach all of the elements of the claimed invention.

Claim 23 is rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Sick in view of Mertens.³ Applicant respectfully traverses this rejection.

The Office Action states that Sick does not specifically recite the range of curvature recited in claim 23, but that it would have been obvious to have incorporated the claimed range into the invention disclosed by Sick, because discovering optimum or workable values or ranges involves only routine skill in the art.

¹ Applicant notes that corrugations are recited only in claim 19 and 21. Therefore, this part of the rejection does not appear to apply to the majority of the rejected claims.

² Sick at 6:50-52.

³ The Office Action states that claim 23 is rejected as unpatentable over Sick. However, in the interview, the Examiner confirmed that the rejection of this claim, which is dependent on a claim rejected over the combination of Sick and Mertens, should also have referenced Mertens in the rejection. Applicants have included the Examiner’s clarifications here rather than request a new Office Action in order to expedite prosecution of the application.

As discussed above, Sick does not teach or suggest all of the elements of the claimed invention. In particular, Sick does not disclose a carrier structure which contains a reflector, a separate platform which supports the reflector, at least one curved transverse frame member which causes the platform, and thereby the reflector, to curve concavely, and a space frame which supports the platform and contains struts that connect opposite ends of the curved transverse member to a spine. Mertens was not discussed in this section of the Office Action, but as discussed above, Mertens fails to cure the deficiencies of Sick. Mertens does not teach or suggest a curved transverse frame member or a space frame which supports a platform carrying a reflector element and that contains struts that connect the curved transverse member to a spine. Applicant does not necessarily agree that the range of curvature in claim 23 is merely an optimum or workable value or range discovered only by routine skill. However, even if this were the case, the other elements of the claim are not taught in the cited references, either individually or in combination.

Claims 25 and 26 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Sick in view of Mertens.⁴ Applicant respectfully traverses this rejection.

The Office Action states that Sick discloses substantially all of the claimed limitations except Sick discloses metal mirrors and does not specifically recite the use of glass mirrors. The Office Action further states that Official Notice is given that the use of glass mirrors in solar concentrators is old and well known in the art and that it would have been obvious to a person of ordinary skill in the art to incorporate glass mirrors into the invention disclosed by Sick.

As discussed above, Sick does not teach or suggest all of the elements of the claimed invention. In particular, Sick does not disclose a carrier structure which contains a reflector, a separate platform which supports the reflector, at least one curved transverse frame member which causes the platform, and thereby the reflector, to curve concavely, and a space frame which supports the platform and contains struts that connect opposite ends of the curved transverse member to a spine. Mertens was not discussed in this section of the Office Action,

⁴ The Office Action states that claims 25 and 26 are rejected as unpatentable over Sick. However, in the interview, the Examiner confirmed that the rejection of these claims, which are dependent on a claim rejected over the combination of Sick and Mertens, should also have referenced Mertens in the rejection.

but as discussed above, Mertens fails to cure the deficiencies of Sick. Mertens does not teach or suggest a curved transverse frame member or a space frame which supports a platform carrying a reflector element and that contains struts that connect the curved transverse member to a spine. Substitution of glass mirrors for the metal mirrors disclosed by Sick does not provide the claimed invention, because other elements of the claims are not disclosed in the cited references.

Claims 30 and 31 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Sick and Mertens, in view of Funger (U.S. Patent No. 6,543,441).⁵ Applicant respectfully traverses this rejection.

The Office Action states that Sick discloses substantially all of the claimed limitations, but does not specifically recite the claimed channel/roller arrangement. Funger is cited as teaching a solar collector including a channel/roller arrangement.

As discussed above, Sick does not teach or suggest all of the elements of the claimed invention. In particular, Sick does not disclose a carrier structure which contains a reflector, a separate platform which supports the reflector, at least one curved transverse frame member which causes the platform, and thereby the reflector, to curve concavely, and a space frame which supports the platform and contains struts that connect opposite ends of the curved transverse member to a spine. Mertens was not discussed in this section of the Office Action, but as discussed above, Mertens fails to cure the deficiencies of Sick. Mertens does not teach or suggest a curved transverse frame member or a space frame which supports a platform carrying a reflector element and that contains struts that connect the curved transverse member to a spine. Funger also does not supply these missing claim elements. Addition of rollers that track within a circumferential channel in Funger to the carrier structures disclosed by Sick and Mertens do not provide the claimed invention, because other elements of the claims are not disclosed in the cited references.

⁵ The Office Action states that claims 30 and 31 are rejected as unpatentable over Sick in view of Funger. However, in the interview, the Examiner confirmed that the rejection of these claims, which are dependent on a claim rejected over the combination of Sick and Mertens, should also have referenced Mertens in the rejection.

Claims 32 and 33 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Sick and Mertens, in view of Butler (U.S. Patent No. 4,559,926).⁶ Applicant respectfully traverses this rejection.

The Office Action states that Sick discloses substantially all of the claimed limitations, but that although Sick discloses a transmission of motion from the electric motor acting on the periphery of circular ring 26, Sick does not specifically recite imparting drive by one of the end members. Butler is cited as teaching a solar collector drive arrangement including hoop element 18, with surrounding fixed chain 30, end members 20, and motor 22 driving the hoop element via the end member.

As discussed above, Sick does not teach or suggest all of the elements of the claimed invention. In particular, Sick does not disclose a carrier structure which contains a reflector, a separate platform which supports the reflector, at least one curved transverse frame member which causes the platform, and thereby the reflector, to curve concavely, and a space frame which supports the platform and contains struts that connect opposite ends of the curved transverse member to a spine. Mertens was not discussed in this section of the Office Action, but as discussed above, Mertens fails to cure the deficiencies of Sick. Mertens does not teach or suggest a curved transverse frame member or a space frame which supports a platform carrying a reflector element and that contains struts that connect the curved transverse member to a spine. Butler also does not supply these missing claim elements. Addition of a chain drive system in Butler to the carrier structures disclosed by Sick and Mertens do not provide the claimed invention, because other elements of the claims are not disclosed in the cited references.

Further, as discussed in the interview with respect to claim 33, Butler does not teach or suggest a drive system wherein a link chain is fixed to an end member and extends around the end member to form a gear wheel that meshes with a sprocket for transferring drive from a motor to the link chain. As disclosed in the instant specification, link chain 22 extends around and is fixed to the channel section of one of the end members 14, to form a gear wheel that engages with the sprocket 20. (See paragraph [0029] and Figure 3.) In contrast, the chain in Butler is not

⁶ The Office Action states that claims 32 and 33 are rejected as unpatentable over Sick in view of Butler. However, in the interview, the Examiner confirmed that the rejection of these claims, which are dependent on a claim rejected over the combination of Sick and Mertens, should also have referenced Mertens in the rejection.

fixed to the channel of the drive ring and does not form a gear wheel which engages a sprocket. In Butler, the chain engages a drive motor, but the chain in Butler does not form a gear wheel that engages a sprocket driven by the drive motor.

The art accepted definition of a “gear wheel” is “a wheel that meshes gear teeth with another part.” (See Dictionary of Engineering, McGraw Hill, second edition, page 246. A copy of this reference is attached herewith.) In the gear wheel taught in the instant application, the gear teeth are open links in the chain that mesh with the sprocket driven by the electric motor to drive the carrier structure. Butler does not teach or suggest such a system. The chain 30 of Butler extends around each of the drive rings 18, but the chain is not affixed to Butler’s drive ring, and the chain links are filled with teeth of the drive ring and not open to form a gear wheel that can engage with a sprocket. Thus, Butler does not teach the claimed chain drive system.

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the all of the rejections under 35 U.S.C. §103(a).

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

The Office is hereby authorized to charge any additional fees that may be required by this paper, or credit any overages, to Deposit Account No. 50-3229.

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On May 3, 2010, I transmitted the documents named above by Electronic Filing System (EFS) of the United States Patent and Trademark Office of the addressee(s) as indicated above.

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